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HOUSE SUBCOMMITTEE ON ENERGY AND AIR QUALITY

STATEMENT OF MARK SCHOENFIELD

Carbon capture and sequestration require technologies that can effectively and efficiently perform, and we are here to talk about a solution which also keeps our power plants running and consumers able to have affordable power.

I am the Senior Vice-President for Operations and General Counsel of Jupiter Oxygen, a small privately held Illinois company which has developed and pioneered a revolutionary technology that makes it both practical and cost effective for electric power plants to capture CO₂, because it reduces fossil fuel usage and concentrates the CO₂ for capture. Unlike most clean coal technologies being developed, Jupiter's patented process can be either designed into new plants or used to retrofit existing plants. The ability to retrofit the existing 600 coal-fired electric power plants is very important to the elimination of CO₂ emissions for climate change, and for NO_x, SO_x and particulate emissions, as well as mercury pollution in the United States.

Natural gas power plants also emit CO₂. Jupiter's technology can also be used on gas fired electric power plants, which results in virtually no emissions levels for NO_x, while also being able to capture CO₂. Thus, our technology is

now emerging as one of the most promising environmental control technologies for use in both coal and gas-fired electric power plants.

The Jupiter oxy-fuel combustion technology uses pure oxygen as the combustion agent, instead of air which contains nitrogen. The resulting exhaust contains almost no NO_x and concentrates CO₂ for efficient capture. Because air is not used, CO₂ does not need to be separated from nitrogen before being compressed, which reduces the cost of capture.

Experimenting and developing the patented oxy-fuel process began in the mid-1990's as a way to cut fuel costs and lower emissions at Jupiter Aluminum, an aluminum recycling and manufacturing business and a patent licensee. Jupiter's technology has been in use at the aluminum plant since 1997. Even without CO₂ capture, the technology results in less fuel being used, so there is CO₂ avoidance because 70% less CO₂ is produced now at that aluminum recycling and manufacturing plant than before.

Since 2001, Jupiter has taken its technology from industrial furnaces to fossil fuel steam boilers and electric power plant test applications. In 2002, the company tested its oxy-fuel technology in a steam boiler using oxygen instead of air, and firing with both natural gas and coal.

In November, 2004, Jupiter combined its oxy-fuel technology with the Integrated Pollutant Removal (IPR) technology developed by the National Energy Technology Laboratory of the US Department of Energy. Jupiter technology enables the IPR system to work efficiently, and test results showed that the combined hybrid system made it both practical and cost effective to capture the CO₂.

This means that coal supplies can be used in an environmentally friendly way, now and in the future. The use of these clean, efficient, and innovative combustion and CO₂ capture technology processes with coal can provide both improved energy independence and security for the U.S., a stable energy supply to support economic growth, and, at the same time, provide truly capture ready power plants fully equipped for CO₂ capture, which will only need to have a CO₂ pipeline hooked up. Moreover, the fuel reduction means that, even before CO₂ capture is fully implemented, less CO₂ is being produced so there is immediate CO₂ avoidance.

And the good news for consumers is that not only can Jupiter's Oxy-fuel technology with the DOE IPR system eliminate greenhouse gas emissions from power plants, it can do so at a cost that will not affect them financially. In fact, the fuel savings and increased power plant efficiencies give Jupiter's technology a clear cost advantage over other clean coal technologies, especially coal gasification. From what we have seen, each of these cost figures is lower than

than alternative clean coal technologies to produce the same results. Plus our technology is ready now, and does not require things still to be invented.

One key problem is that utilities and others are reluctant to use this approach despite our successful tests until R&D testing is done in an operating unit on the grid. We have started a project for the world's first oxy-fuel clean coal retrofit of an operating electric power plant. Because this is a first-of-its kind in the world project, continued federal funding is essential.

Section 1407 of 2005 Energy Bill authorized \$100,000,000 a year for three years for this type of undiluted, high flame temperature oxy-fuel technology. To date, the DOE has yet to move forward to obtain that funding. In fact, the Administration's last three budgets have had no funding for oxy-fuel technology nor have they had any funding for retrofitting the existing coal-fueled power plants or natural gas power plants in the United States, even though there is wide spread congressional support for both.

We need members of this committee to push the DOE and the Administration to support oxy-fuel technology and our retrofit project with the Ohio Air Quality Development Authority, including for use of the DOE NETL's own IPR technology and our planned work with the NETL. And we need your support in Congress in helping us obtain the funding necessary to move forward with this vital and important retrofit project.

There is no reason to wait to solve the reported climate change problems associated with coal and natural gas burning electric power plants. We can do so now with federal support.

And so, in conclusion, the United States can have an effective approach to clean coal technology today. We can do so at a reasonable price both for the generators and the consumers. There is no reason to wait thirty years or even twenty years. We can safely use coal to power the economy of our great country today, and to use natural gas as well, without adding to climate change or air pollution. Oxy-fuel technology combined with the IPR system developed by the United States in the DOE's own lab is the economical and safe answer to capturing CO₂.

The Jupiter oxy-fuel/DOE IPR technology combination can make the United States the world leader in Clean Coal Technology, and end the problem of emissions of Green House Gases and other harmful emission such as mercury from electric power plants.